BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: B.TECH **SEMESTER: IV**
BRANCH: CSE / IT **SESSION : SP/2020**

SUBJECT: CS211 OPERATING SYSTEM

TIME: 2 HOURS **FULL MARKS: 25**

INSTRUCTIONS:
1. The total marks of the questions are 25.
2. Candidates may attempt for all 25 marks.
3. Before attempting the question paper, be sure that you have got the correct question paper.
4. The missing data, if any, may be assumed suitably.

				CO	BL
Q1	(a)	How to define Operating System and what is the objectives and function of an Operating System?	[2]	1	2
Q1	(b)	Describe the difference between simple batched, Multiprogramming and Time-sharing operating system.	[3]	1, 4	2,3
Q2	(a)	What is the difference between process, program and thread?	[2]	1,2	3
Q2	(b)	What are the components of the process environment? Briefly discuss the fundamental state transitions for a process.	[3]	1,2,5	3,4
Q3	(a)	What is the difference between multithreading and multitasking?	[2]	2,3	3
Q3	(b)	Describe the difference between kernel level threads and user level threads.	[3]	2,3,5	4,5
Q4	(a)	What do you mean by scheduler? What is the basic difference between preemptive and non-preemptive?	[2]	2,3	3
Q4	(b)	Consider the following set of processes	[3]	2,3,4	4,5

Processes	Priority	Arrival Time	Burst Time (processing Time)
P1	3	0	8
P2	4	1	2
P3	4	3	4
P4	5	4	1
P5	2	5	6
P6	6	6	5
P7	1	10	1

Use Non-preemptive and Preemptive priority scheduling algorithm, find Completion Time, Response Time, Waiting Time and Average turnaround time for a given set of processes.

Q5	(a)	What are the requirements for mutual exclusion?	[2]	3,5	3
Q5	(b)	What operations can be performed on a semaphore? What is the difference between binary and general semaphores?	[3]	2,3,5	3,4

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